

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. - 19. (Canceled)

20. (Currently Amended) A rain sensor arranged with respect to a measuring distance in which is arranged a windshield, comprising:

a housing;

a light conducting element [[adapted to be joined]] for joining to the housing, wherein the light conducting element includes a first region having a first color and a second region having a second color that is different than the first color; and

a plurality of optical and electronic components mounted in the housing and including:

at least one transmitter for transmitting an electromagnetic wave,
and

at least one receiver for receiving the electromagnetic wave, the measuring distance influencing a wave propagation between the at least one transmitter and the at least one receiver such that when a coating forms on the windshield, an output signal sensed by the at least one receiver is changed.

21. (Previously Presented) The rain sensor according to claim 20, wherein the rain sensor is used in a motor vehicle.

22. (Previously Presented) The rain sensor according to claim 20, wherein the coating is a result of wetting by precipitation.

23. (Previously Presented) The rain sensor according to claim 20, wherein:

the light conducting element forms a base plate of the housing and includes a broad area of connection with the windshield.

24. (Previously Presented) The rain sensor according to claim 23, further comprising:
a common printed circuit board on which is mounted the plurality of optical and electronic components in accordance with SMD technology.
25. (Previously Presented) The rain sensor according to claim 24, further comprising:
an integrated connector for an electrical connection to a downstream analysis unit, wherein:
the housing corresponds to a rectangular-shaped sensor housing.
26. (Previously Presented) The rain sensor according to claim 25, further comprising:
contact pins through which the common printed circuit board is connected to the integrated connector.
27. (Previously Presented) The rain sensor according to claim 20, wherein:
the rain sensor is cemented to an inside of the windshield.
28. (Previously Presented) The rain sensor according to claim 27, further comprising:
a transparent film that is self-adhesive on each side thereof and corresponds to a connection between the windshield and the light conducting element.
29. (Previously Presented) The rain sensor according to claim 20, wherein:
the output signal is provided to a downstream analysis circuit and includes information with respect to an instantaneous degree of wetting of the windshield.
30. (Previously Presented) The rain sensor according to claim 29, wherein:
at least one of a windshield wiper mechanism and a vehicle lighting system is activated as a function of the output signal.
31. (Previously Presented) The rain sensor according to claim 20, wherein:
the at least one transmitter includes at least one LED.

32. (Previously Presented) The rain sensor according to claim 31, wherein:
a first one of the at least one receiver that detects an optical signal emitted by the at least one LED includes a photodiode.
33. (Previously Presented) The rain sensor according to claim 20, wherein:
the plurality of optical and electronic components includes at least one ambient light sensor.
34. (Previously Presented) The rain sensor according to claim 33, wherein:
the at least one ambient light sensor includes an aperture angle of approximately 40° inclined upward with an aperture direction in a direction of travel.
35. (Previously Presented) The rain sensor according to claim 34, wherein:
the at least one ambient light sensor is sensitive to an ultraviolet light.
36. (Previously Presented) The rain sensor according to claim 35, wherein:
the ultraviolet light corresponds to sunlight.
37. (Previously Presented) The rain sensor according to claim 20, wherein:
the first region includes a black plastic.
38. (Previously Presented) The rain sensor according to claim 20, wherein:
the second region includes a transparent plastic.
39. (Previously Presented) The rain sensor according to claim 20, wherein:
the first region and the second region are formed according to a two-color injection molding process.
40. (Previously Presented) The rain sensor according claim 20, wherein:
the first region and the second region correspond to two single-color plastics, and

the light conducting element is formed by combining the two single-color plastics.

41. (Previously Presented) The rain sensor according to claim 20, wherein:
the light conducting element includes integrated lens structures for light bundling.
42. (Previously Presented) The rain sensor according to claim 33, wherein:
the at least one ambient light sensor is sensitive to visible light.
43. (Previously Presented) The rain sensor according to claim 20, wherein:
the light conducting element forms a cover of the housing.
44. (Currently Amended) A rain sensor arranged with respect to a measuring distance in which is arranged a windshield, comprising:
a housing;
a light conducting element [[adapted to be joined]] for joining to the housing; and
a plurality of optical and electronic components mounted in the housing and including:
at least one transmitter for transmitting an electromagnetic wave,
at least one ambient light sensor that is sensitive to visible light,
and
at least one receiver for receiving the electromagnetic wave, the measuring distance influencing a wave propagation between the at least one transmitter and the at least one receiver such that when a coating forms on the windshield, an output signal sensed by the at least one receiver is changed.
45. (Previously Presented) The rain sensor according to claim 44, wherein:
the rain sensor is used in a motor vehicle.
46. (Previously Presented) The rain sensor according to claim 44, wherein:
the coating is a result of wetting by precipitation.

47. (Previously Presented) The rain sensor according to claim 44, wherein:
the light conducting element forms a base plate of the housing and
includes a broad area of connection with the windshield.
48. (Previously Presented) The rain sensor according to claim 47, further
comprising:
a common printed circuit board on which is mounted the plurality of optical
and electronic components in accordance with SMD technology.
49. (Previously Presented) The rain sensor according to claim 48, further
comprising:
an integrated connector for an electrical connection to a downstream
analysis unit, wherein:
the housing corresponds to a rectangular-shaped
sensor housing.
50. (Previously Presented) The rain sensor according to claim 49, further
comprising:
contact pins through which the common printed circuit board is connected
to the integrated connector.
51. (Previously Presented) The rain sensor according to claim 44, wherein:
the rain sensor is cemented to an inside of the windshield.
52. (Previously Presented) The rain sensor according to claim 51, further
comprising:
a transparent film that is self-adhesive on each side thereof and
corresponds to a connection between the windshield and the light conducting element.
53. (Previously Presented) The rain sensor according to claim 44, wherein:
the output signal is provided to a downstream analysis circuit and
includes information with respect to an instantaneous degree of wetting of
the windshield.

54. (Previously Presented) The rain sensor according to claim 53, wherein:
at least one of a windshield wiper mechanism and a vehicle lighting system is activated as a function of the output signal.
55. (Previously Presented) The rain sensor according to claim 44, wherein:
the at least one transmitter includes at least one LED.
56. (Previously Presented) The rain sensor according to claim 55, wherein:
a first one of the at least one receiver that detects an optical signal emitted by the at least one LED includes a photodiode.
57. (Previously Presented) The rain sensor according to claim 44, wherein:
the at least one ambient light sensor includes an aperture angle of approximately 40° inclined upward with an aperture direction in a direction of travel.
58. (Previously Presented) The rain sensor according to claim 44, wherein:
the at least one ambient light sensor is sensitive to an ultraviolet light.
59. (Previously Presented) The rain sensor according to claim 58, wherein:
the ultraviolet light corresponds to sunlight.
60. (Previously Presented) The rain sensor according to claim 44, wherein:
where an infrared light is used, the light conducting element is formed of a black plastic.
61. (Previously Presented) The rain sensor according to claim 44, wherein:
the light conducting element includes optical areas formed from transparent plastic for the at least one receiver.
62. (Previously Presented) The rain sensor according to claim 44, wherein:
the light conducting element includes a plastic part formed according to a two-color injection molding process.

63. (Previously Presented) The rain sensor according claim 44, wherein:
the light conducting element is formed by combining two single-color
plastics.
64. (Previously Presented) The rain sensor according to claim 44, wherein:
the light conducting element includes integrated lens structures for
light bundling.
65. (Previously Presented) The rain sensor according to claim 44, wherein:
the light conducting element forms a cover of the housing.
66. (Previously Presented) The rain sensor according to claim 20, wherein:
the first region includes a black plastic, and
the second region includes a transparent plastic.